

Set	Items	Description
S1	350352	(MACHINING? OR MACHINE OR CUTTING OR DRILLING OR BORING) (2-N) (CENTER? OR SYSTEM? OR DEVICE? OR TOOL? OR POSITION? OR LINE?)
S2	12888	IC=(G01B-005/04 OR G01B-021/00 OR G05B-019/401 OR G01B-021-/20)
S3	361919	S1:S2
S4	224878	(PALLET? OR WORK(W)PIECE? OR WORKPIECE?) (2N) (MAGAZIN? OR C-HANGER? OR TABLE?) OR CONVEYOR?
S5	321543	(MEASUR? OR INSPECT? OR PROFIL? OR GUAG? OR EVALUAT? OR CALCULAT?) (2N) (APPARATUS OR MACHINE? OR POSITION? OR SYSTEM? OR DEVICE?) OR CNC OR COMPUTER()NUMERICAL?()CONTROL? OR CMM OR (-CO()ODINAT? OR COORDINAT?) ()MEASURING()MACHIN?
S6	577743	SHAR? OR CLOSE(6N) (VICINITY? OR PROXIMIT?) OR INCORPORAT?
S7	24	SHORT?() (PRODUCT? OR ASSEMBL?) ()LINE?
S8	0	S3 AND S4 AND S5 AND S6 AND S7
S9	568	S3 AND S5 AND S6
S10	25	S3(3N)S5(3N)S6
S11	1	S10 AND S4
S12	24	S10 NOT S11
S13	21	S12 AND PY<=1999
S14	25	S3(3N)S5(3N)S4
S15	0	S14 AND S6
S16	19	S14 AND PY<=1999
S17	19	S16 NOT S10

? show files

File 347:JAPIO Oct 1976-2002/Jun(Updated/021004)

(c) 2002 JPO & JAPIO

File 350:Derwent WPIX 1963-2002/UD,UM &UP=200267

(c) 2002 Thomson Derwent

?

13/3,K/1 (Item 1 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2002 JPO & JAPIO. All rts. reserv.

06011131 **Image available**
METHOD FOR INSPECTING SUPERCONDUCTIVE COIL

PUB. NO.: 10-294231 [JP 10294231 A]
PUBLISHED: November 04, 1998 (19981104)
INVENTOR(s): SASAOKA TAKAAKI
APPLICANT(s): HITACHI CABLE LTD [000512] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 09-104541 [JP 97104541]
FILED: April 22, 1997 (19970422)

...PUBLISHED: 19981104)

ABSTRACT

...SOLVED: To diagnose the sufficiency of electromagnetic force-resistant fixation reinforcement of a coil before incorporating the coil into a heat insulating container of an actual machine system, by evaluating the volt-ampere characteristic by DC conduction test, and then causing a predetermined pulse current...

13/3,K/2 (Item 2 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2002 JPO & JAPIO. All rts. reserv.

03142288 **Image available**
LASER BEAM MACHINE

PUB. NO.: 02-117788 [JP 2117788 A]
PUBLISHED: May 02, 1990 (19900502)
INVENTOR(s): NEI MASAHIRO
TAKAGI MAKOTO
APPLICANT(s): NIKON CORP [000411] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 63-270316 [JP 88270316]
FILED: October 26, 1988 (19881026)
JOURNAL: Section: M, Section No. 1001, Vol. 14, No. 339, Pg. 89, July 23, 1990 (19900723)

...PUBLISHED: 19900502)

ABSTRACT

... wafer W of an object to be machined is irradiated to execute heat machining is incorporated integrally with a laser beam irradiation system for machining, a measurement system, an observation system and global alignment sensors. The sensors WX, WY, W.theta. and an...

13/3,K/3 (Item 1 from file: 350)
DIALOG(R) File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

012815746 **Image available**
WPI Acc No: 1999-621977/ 199954
XRPX Acc No: N99-458912

Work form-measuring method

Patent Assignee: MITUTOYO CORP (MIUT); MITUTOYO KK (MIUT); MORI SEIKI
SEISAKUSHO KK (MORI-N); KOBI A (KOBI-I); MATSUMIYA S (MATS-I); YODA Y
(YODA-I)

Inventor: KOBI A; MATSUMIYA S; YODA Y
Number of Countries: 027 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 957417	A2	19991117	EP 99303581	A	19990507	199954 B
JP 11325869	A	19991126	JP 98127278	A	19980511	200007

Priority Applications (No Type Date): JP 98127278 A 19980511

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 957417 A2 E 19 G05B-019/401

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

JP 11325869 A 9 G01B-021/00

US 20020000047 A1 G01B-005/04

Abstract (Basic):

... close to work and then measures the forms and dimensions of the work, enabling the **measuring machine** to be **incorporated** in the **machining center** resulting in a shorter production line and an acceleration of feed back of the measured...

13/3,K/4 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010907167 **Image available**

WPI Acc No: 1996-404118/ 199641

XRFX Acc No: N96-340410

Multi-coordinate sensor head for machined workpiece - has deflection pin supported by multi-point bearing matched to geometry and material characteristics of workpiece.

Patent Assignee: HEIDENHAIN GMBH JOHANNES (HEIJ)

Inventor: FEICHTINGER K

Number of Countries: 009 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 731333	A1	19960911	EP 95103461	A	19950310	199641 B
DE 19605349	A1	19960912	DE 1005349	A	19960214	199642
JP 8327344	A	19961213	JP 9651989	A	19960308	199709
US 5806201	A	19980915	US 96613561	A	19960308	199844
JP 2997412	B2	20000111	JP 9651989	A	19960308	200007
EP 731333	B1	20010131	EP 95103461	A	19950310	200108
DE 59509004	G	20010308	DE 509004	A	19950310	200115
			EP 95103461	A	19950310	
DE 29624330	U1	20020307	DE 1005349	A	19960214	200225
			DE 96U2024330	U	19960214	

Priority Applications (No Type Date): EP 95103461 A 19950310

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 731333 A1 G 7 G01B-005/012

Designated States (Regional): AT CH DE FR GB IT LI

DE 19605349 A1 8 G01B-021/04

JP 8327344 A 6 G01B-021/00

US 5806201 A G01B-005/012

JP 2997412 B2 6 G01B-021/00 Previous Publ. patent JP 8327344

EP 731333 B1 G G01B-005/012

Designated States (Regional): AT CH DE FR GB IT LI

DE 59509004 G G01B-005/012 Based on patent EP 731333

DE 29624330 U1 G01B-021/04 Application no. DE 1005349

...Abstract (Basic): USE - For **incorporating** directly in **machine tool**, with increased **measuring accuracy** for **machined workpiece**...

13/3,K/5 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010897542 **Image available**

WPI Acc No: 1996-394493/ 199640

XRFX Acc No: N96-332468

Coordinate measurement appts. with paths programmable by learning e.g.
for CNC-machine tool - is switched into manual mode for following
contours of template workpiece when contacts are bridged by hand of
operator

Patent Assignee: ZEISS FA CARL (ZEISS)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 29607383	U1	19960829				199640 B

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 29607383	U1		13	G05B-019/401	

...Abstract (Basic): USE/ADVANTAGE - For CNC machine tools, the
appts. can be programmed very sensitively in close proximity to the
machine, saving the cost of a special work-station...

13/3,K/6 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010433510 **Image available**

WPI Acc No: 1995-334830/ 199543

XRAM Acc No: C95-147834

XRPX Acc No: N95-251066

Hydraulic-pressure, crush-type measuring device - comprises water-barrier
appts.

Patent Assignee: ZH DENRYOKU CHUO KENKYUSHO (DENY)

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 95088743	B2	19950927	JP 87143494	A	19870609	199543 B
JP 63308186	A	19881215	JP 87143494	A	19870609	199543

Priority Applications (No Type Date): JP 87143494 A 19870609

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 95088743	B2		5	E21B-047/00	Based on patent JP 63308186
JP 63308186	A			E21B-047/00	

...Abstract (Basic): USE/ADVANTAGE - Used as a measuring device in
drilling hole (1). Incorporates a shaping appts. (2), bone-hole
television camera (3) and crush appts. in one appts...

13/3,K/7 (Item 5 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010383065 **Image available**

WPI Acc No: 1995-284379/ 199538

XRPX Acc No: N95-216514

Ballast cleaning machine with device to measure track level - has two
sensors, to measure track level before and after cleaning

Patent Assignee: DEUT BAHN AG (DEBA-N)

Inventor: SCHEIBEL G; SCHLENKER T

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4412241	C1	19950824	DE 4412241	A	19940405	199538 B

Priority Applications (No Type Date): DE 4412241 A 19940405

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4412241	C1		9	E01B-035/00	

...Abstract (Basic): USE/ADVANTAGE - Travelling railway ballast-cleaning

machine incorporated device to measure , indicate , and register track level and performs simple and precise measuring before and after track...

13/3,K/8 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010091454 **Image available**

WPI Acc No: 1994-359167/ 199445

XRPX Acc No: N94-281402

Implement unit for multi-side workpiece machining - has work retainer radially fixed in hydraulic, centring, clamping, dividing and indexing devices

Patent Assignee: SPREITZER J (SPRE-I)

Inventor: SPREITZER J

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4315839	A1	19941117	DE 4315839	A	19930512	199445 B
DE 4315839	C2	19951005	DE 4315839	A	19930512	199544

Priority Applications (No Type Date): DE 4315839 A 19930512

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

DE 4315839	A1	14		B23Q-003/06	
------------	----	----	--	-------------	--

DE 4315839	C2	7		B23Q-003/08	
------------	----	---	--	-------------	--

...Abstract (Basic): The hydraulic, centring, clamping, dividing, and indexing devices (33) are incorporated in a rectangular block (10) of a CNC machine tool , mounted between a turntable (42) and a counter bearing (49). For machining, the block is...

13/3,K/9 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010028112 **Image available**

WPI Acc No: 1994-295825/ 199437

XRAM Acc No: C94-134903

XRPX Acc No: N94-232704

Digital mud pulse telemetry system used as part of measuring-while-drilling system - includes multi-level encoder in continuous-value mud pulse transmitter and receiver that includes a multi-level decoder

Patent Assignee: GARDNER W R (GARD-I); HALLIBURTON LOGGING SERVICES INC

(HALL); HALLIBURTON ENERGY SERVICES INC (HALL); HALLIBURTON CO (HALL)

Inventor: GARDNER W R; GILBERT G N

Number of Countries: 007 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 617196	A2	19940928	EP 94302073	A	19940323	199437 B
NO 9401112	A	19940927	NO 941112	A	19940325	199442
CA 2119986	A	19940927	CA 2119986	A	19940325	199445
JP 7057179	A	19950303	JP 9480876	A	19940328	199518
EP 617196	A3	19960403	EP 94302073	A	19940323	199625
EP 617196	B1	20000628	EP 94302073	A	19940323	200035
DE 69425008	E	20000803	DE 625008	A	19940323	200044
			EP 94302073	A	19940323	
CA 2119986	C	20020219	CA 2119986	A	19940325	200222

Priority Applications (No Type Date): US 9337757 A 19930326

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

EP 617196	A2	E	21	E21B-047/12	
-----------	----	---	----	-------------	--

Designated States (Regional): DE FR GB NL

NO 9401112 A E21B-044/00
 CA 2119986 A G08C-023/00
 JP 7057179 A 18 G08C-019/00
 EP 617196 A3 E21B-047/12
 EP 617196 B1 E E21B-047/12
 Designated States (Regional): DE FR GB NL
 DE 69425008 E E21B-047/12 Based on patent EP 617196
 CA 2119986 C E G08C-023/00

...Abstract (Basic): Pref., system is **incorporated in measuring -while-drilling system** and also comprises a downlink system. In use signals transmitted by the transmitter are frequency...

13/3,K/10 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

009005384 **Image available**

WPI Acc No: 1992-132679/ 199217

XRPX Acc No: N92-098976

Device for assembling tapered roller bearing - uses visual inspection machine incorporating rotary device , charge pan, enclosing ring and casing NoAbstract

Patent Assignee: XIANGYANG BEARING FACTORY (XIAN-N); XIANGYANG BEARING F (XIAN-N)

Inventor: SONG W; TIAN F

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
CN 1053113	A	19910717	CN 89109712	A	19891230	199217 B
CN 1023950	C	19940309	CN 89109712	A	19891230	199524

Priority Applications (No Type Date): CN 89109712 A 19891230

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

CN 1023950 C F16C-043/06

... **uses visual inspection machine incorporating rotary device , charge pan, enclosing ring and casing NoAbstract**

13/3,K/11 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

008850675 **Image available**

WPI Acc No: 1991-354695/ 199149

XRPX Acc No: N91-271417

Device for measuring drilling depth of drilling shares - has mechanical ground scanning device and length or angle sensor

Patent Assignee: INST GETREIDE BERNB (GETR-N)

Inventor: FROMME E; HERBS A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DD 291680	A	19910711	DD 375833	A	19900205	199149 B

Priority Applications (No Type Date): DD 337583 A 19900205; DD 375833 A 19900205

Device for measuring drilling depth of drilling shares -

13/3,K/12 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

008630361 **Image available**

WPI Acc No: 1991-134391/ 199119

XRPX Acc No: N91-103260

Measuring system for numerically-controlled machine tool has auxiliary track holding parameter information for automatic adaption of numerical control

Patent Assignee: HEIDENHAIN GMBH JOHANNES (HEIJ)

Inventor: ROTHFELD R; SPIRKL M; SPIRKI M

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 425912	A	19910508	EP 90120022	A	19901019	199119 B
DE 3936452	A	19910508	DE 3936452	A	19891102	199120
EP 425912	B1	19940105	EP 90120022	A	19901019	199402
DE 59004121	G	19940217	DE 504121	A	19901019	199408
			EP 90120022	A	19901019	
EP 425912	B2	19960814	EP 90120022	A	19901019	199637

Priority Applications (No Type Date): DE 3936452 A 19891102

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

EP 425912	B1	G	5	G01B-021/00	
-----------	----	---	---	-------------	--

DE 59004121	G			G01B-021/00	Based on patent EP 425912
-------------	---	--	--	-------------	---------------------------

EP 425912	B2	G	5	G01B-021/00	
-----------	----	---	---	-------------	--

Designated States (Regional): DE FR GB IT

...Abstract (Basic): The measuring system for linear or angular measurement, incorporates an auxiliary information track (21) within which the measuring system or machine tool parameters are recorded in coded format. When the machine tool (1) is brought into operation...

13/3,K/13 (Item 11 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

008259019 **Image available**

WPI Acc No: 1990-146020/ 199019

XRPX Acc No: N90-113067

Device measuring dynamic loads acting on machine tool - has rigid intermediate base coupled to machine tool by three-component force sensors and to base by active vibrating insulator-positioners

Patent Assignee: LIGHT TEXT IND RES (LIGH-R)

Inventor: KARTOVENKO V A; KRYLOV G V; PETROV N A

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 1493889	A	19890715	SU 4317555	A	19871019	199019 B

Priority Applications (No Type Date): SU 4317555 A 19871019

...Abstract (Basic): The measuring device incorporates a machine tool (1) fitted to three-component force sensors (2-5) which are mounted on a rigid...

13/3,K/14 (Item 12 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

007586709 **Image available**

WPI Acc No: 1988-220641/ 198832

XRPX Acc No: N88-168246

Safety device for machine tool - controls angle of rotation of turret head indexing disc

Patent Assignee: VEB WERKZEUG MATERN (MATE-N)

Inventor: BIGALKE T; HUBNER S; THEUERKAUF W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DD 254899	A	19880316	DD 297774	A	19861217	198832 B

13/3,K/17 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

004174032

WPI Acc No: 1985-000912/ 198501

XRPX Acc No: N85-000461

Seed drill with adjustable shares - has hydraulic depth measurement device with control valve acting on adjusting mechanism

Patent Assignee: AMAZONEN-WERKE DREYER GMBH H (DREY)

Inventor: GEHRKE R; GROSSESCHA F

Number of Countries: 007 Number of Patents: 009

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 3321816	A	19841220	DE 3321816	A	19830616	198501 B
FR 2547973	A	19850104				198507
NL 8401808	A	19850116				198507
GB 2144012	A	19850227	GB 8415113	A	19840613	198509
DK 8402921	A	19841217				198511
ES 8503469	A	19850616				198549
GB 2144012	B	19860716				198629
DE 3321816	C	19860925				198639
AT 8401960	A	19900715				199034

Priority Applications (No Type Date): DE 3321816 A 19830616; DE 226659 A 19830616

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 3321816	A		9		

...Abstract (Basic): The spring tension is regulated by a central adjusting mechanism so as to keep the **shares** at constant depth, which is **measured** by a **device** on the **machine** .

13/3,K/18 (Item 16 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

004092725

WPI Acc No: 1984-238266/ 198439

XRPX Acc No: N84-178277

Machine tool peripheral attachment - with carriage allowing initial manual coarse positioning and final fine positioning via setting drive

Patent Assignee: GILDEMEISTER-DE VLI (GILD-N)

Inventor: SCHURFELD H; WESTEREICH W

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 3309775	A	19840920	DE 3309775	A	19830318	198439 B
GB 2139927	A	19841121	GB 846942	A	19840316	198447
US 4591306	A	19860527	US 84590128	A	19840316	198624
GB 2139927	B	19861022				198643
CH 663561	A	19871231				198803

Priority Applications (No Type Date): DE 3309775 A 19830318

...Abstract (Basic): Tool setting **apparatus** or **measuring apparatus** provided as peripheral equipment for a **machine tool** and **incorporating** at least one slide slidable on rectangular co-ordinates longitudinally of a guide means, electrically...

...Abstract (Equivalent): Tool setting **apparatus** or **measuring apparatus** provided as peripheral equipment for a **machine tool** and **incorporating** at least one slide slidable on rectangular co-ordinates longitudinally of a guide means, electrically...

13/3,K/19 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

003593371

WPI Acc No: 1983-E1569K/ 198313

XRPX Acc No: N83-054322

Machine tool for machining gears - has processors controlling positions and speeds of all spindles

Patent Assignee: LIEBHERR-VERZAHNTEC (LIEB-N)

Inventor: SCHWIEGELS K; STUTE G

Number of Countries: 006 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 74659	A	19830323	EP 82108445	A	19820913	198313 B
DE 3136390	A	19830511				198320
EP 74659	B	19890816				198933
DE 3279893	G	19890921				198939

Priority Applications (No Type Date): DE 3136390 A 19810914

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

EP 74659	A	G	14		
----------	---	---	----	--	--

Designated States (Regional): CH DE FR GB IT LI

EP 74659	B	G			
----------	---	---	--	--	--

Designated States (Regional): CH DE FR GB IT LI

...Abstract (Basic): relative positions of workpiece and tool. A modular control processing system is integrated into the **machine tool** and contains several processors **sharing** an addressable memory. The processing **system** uses the **measured position** of the tool to calculate the required positions and the speeds for the other spindles

...

13/3,K/20 (Item 18 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

003560645

WPI Acc No: 1983-A8835K/ 198303

XRPX Acc No: N83-011930

Machining of internal surfaces defined by epitrochoidal equidistances - by interaction of external and eccentrically mounted internal chuck of lathe, linked with overhang-controlled tool holder

Patent Assignee: MAZEPA G V (MAZE-I)

Inventor: MAMONTOV V G; MISHIN V I

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SU 908539	B	19820228				198303 B

Priority Applications (No Type Date): SU 2941752 A 19800618

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

SU 908539	B		5		
-----------	---	--	---	--	--

...Abstract (Basic): To increase the accuracy of the generated **profile**, a **device** for the **machining** of non-circular internal surfaces defined by trochoidal equidistances **incorporates** a coaxial external gear chuck of a lathe interacting with a driven internal gear chuck...

13/3,K/21 (Item 19 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

001676810

WPI Acc No: 1977-B3278Y/ 87707

Tensile testing machine investigating deformation and strain - measures elongation over whole length of test piece

Patent Assignee: MFL PRUF-& MESSSYST (MFLP-N); SOLMITZ H A (SOLM-I)

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 2533313	A	19770210				197707 B
DE 2533313	C	19860327				198614

Priority Applications (No Type Date): DE 2533313 A 19750725

...Abstract (Basic): The machine incorporates a device to measure the elongation of the test piece. An indicator is automatically operated when the reference load...

?

010380244 ****Image available****

WPI Acc No: 1995-281558/ 199537

Protective device for rotating shaft e.g. for coordinate measuring machine - detects approaching objects which outputs electrical signals based on movement of contact point defined between stationary and movable plates

Patent Assignee: TOYOTA JIDOSHA KK (TOYT)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 7180797	A	19950718	JP 93346556	A	19931222	199537 B

Priority Applications (No Type Date): JP 93346556 A 19931222

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 7180797	A		6	F16P-007/00	

...Abstract (Basic): USE/ADVANTAGE - In e.g. **measurement devices , finishing machine , conveyor** . Prevents collision of shaft with objects or human beings by detecting approaching objects. Prevents damage...

17/3,K/7 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010372125 ****Image available****

WPI Acc No: 1995-273487/ 199536

Bearing-driven transporting appts. for machine tools , measuring machine and conveyors - uses several balls which circulates around worm shaft through spiral-type groove enabling movement of conveyor

Patent Assignee: CHUICHI SEIKI KK (CHUI-N)

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 7174206	A	19950711	JP 93324480	A	19931222	199536 B

Priority Applications (No Type Date): JP 93324480 A 19931222

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 7174206	A		4	F16H-025/22	

Bearing-driven transporting appts. for machine tools , measuring machine and conveyors -

17/3,K/8 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

(c) 2002 Thomson Derwent. All rts. reserv.

010106209 ****Image available****

WPI Acc No: 1995-007462/ 199502

XRPX Acc No: N95-006247

Circular profile driving machine for sewage channels - contains steel tubes with wing-shaped extension protruding into surrounding earth

Patent Assignee: DECKERS GMBH & CO KG HEINRICH (DECK-N)

Inventor: GARTZ F; SCHMIDT W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
DE 4317515	A1	19941201	DE 4317515	A	19930526	199502 B

Priority Applications (No Type Date): DE 4317515 A 19930526

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
DE 4317515	A1		9	E21D-009/06	

...Abstract (Basic): To the driving shield (10) is coupled a steel tube (24) for **machine appliances, measuring devices , material**

7/5,K/3 (Item 3 from File: 350)
DIALOG(R) File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

012815746 **Image available**

WPI Acc No: 1999-621977/199954

XRPX Acc No: N99-458912

Work form-measuring method

Patent Assignee: MITUTOYO CORP (MIUT); MITUTOYO KK (MIUT); MORI SEIKI
SEISAKUSHO KK (MORI-N); KOBI A (KOBI-I); MATSUMIYA S (MATS-I); YODA Y
(YODA-I)

Inventor: KOBI A ; MATSUMIYA S ; YODA Y

Number of Countries: 027 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 957417	A2	19991117	EP 99303581	A	19990507	199954 B
JP 11325869	A	19991126	JP 98127278	A	19980511	200007
US 20020000047	A1	20020103	US 99309264	A	19990511	200207

Priority Applications (No Type Date): JP 98127278 A 19980511

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
-----------	------	-----	----	----------	--------------

EP 957417	A2	E	19	G05B-019/401	
-----------	----	---	----	--------------	--

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LT LU LV MC MK NL PT RO SE SI

JP 11325869	A	9	G01B-021/00
-------------	---	---	-------------

US 20020000047	A1		G01B-005/04
----------------	----	--	-------------

Abstract (Basic): EP 957417 A2

NOVELTY - Method places work (10) at waiting position after machining by machining center (20) and places probe from 3-D co-ordinate measuring machine in vicinity of center, close to work and then measures the forms and dimensions of the work, enabling the measuring machine to be incorporated in the machining center resulting in a shorter production line and an acceleration of feed back of the measured data.

USE - For providing a work form-measuring device and co-ordinate measuring machine .

ADVANTAGE - Enables a true error of the machining tool to be extracted, which enables an optimum feedback value to be obtained.

DESCRIPTION OF DRAWING(S) - The drawing shows a schematic perspective view of the machining center .

the work (10)

the machining center (20)

pp; 19 DwgNo 4/13

Title Terms: WORK; FORM; MEASURE; METHOD

Derwent Class: S02; T06; X25

International Patent Class (Main): G01B-005/04; G01B-021/00; G05B-019/401

International Patent Class (Additional): G01B-021/20

File Segment: EPI

Inventor: KOBI A ...

... MATSUMIYA S ...

... YODA Y

Abstract (Basic):

... Method places work (10) at waiting position after machining by machining center (20) and places probe from 3-D co-ordinate measuring machine in vicinity of center, close to work and then measures the forms and dimensions of the work, enabling the measuring machine to be incorporated in the machining center resulting in a shorter production line and an acceleration of feed back of the measured...

... For providing a work form-measuring device and co-ordinate measuring machine .

...

...Enables a true error of the **machining tool** to be extracted, which enables an optimum feedback value to be obtained...

...The drawing shows a schematic perspective view of the **machining center** .

...

...the **machining center** (20

7/5,K/5 (Item 5 from file: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
(c) 2002 European Patent Office. All rts. reserv.

00952566

GENERATION OF MEASUREMENT PROGRAM IN NC MACHINING AND MACHINING MANAGEMENT
BASED ON THE MEASUREMENT PROGRAM
ERZEUGUNG EINES MESSPROGRAMMS FÜR NC-BEARBEITUNG UND DARAUF GESTÜTZTES
BEARBEITUNGSMANAGEMENT

PRODUCTION D'UN PROGRAMME DE MESURE POUR DE L'USINAGE CM ET GESTION DE
L'USINAGE FONDÉE SUR LE PROGRAMME DE MESURE

PATENT ASSIGNEE:

Mitutoyo Corporation, (1108727), 20-1, Sakado 1-chome, Takatsu-ku,
Kawasaki-shi, Kanagawa 213, (JP), (applicant designated states:
DE;FR;GB;IT)

KABUSHIKI KAISHA MORI SEIKI SEISAKUSHO, (1093060), 106, Kitakoriyamacho,
Yamatokoriyamashi Nara 639-11, (JP), (applicant designated states:
DE;FR;GB;IT)

OKUMA CORPORATION, (2058080), 1-32, Tsuji-machi, Kita-ku, Nagoya-shi,
Aichi 462, (JP), (applicant designated states: DE;FR;GB;IT)

INVENTOR:

YAMAZAKI, Kazuo, 44204 Greenview Drive, El Macero, CA 95618, (US)

MATSUMIYA, Sadayuki, c/o Mitutoyo Corp., , 20-1 Sakado,1-chome,
Takatsu-ku, Kawasaki-shi, Kanagawa 213, (JP)

MORITA, Naoki, c/o K.K. Mori Seiki Seisakusho, 106, Kitakoriyama-cho,
Yamatokoriyama-shi,, Nara 639-11, (JP)

FUKAYA, Yasushi, c/o Okuma Corp., Oguchi Kojo, 5-25-1 Shimo-koguchi,
Oguchi-cho, Niwa-gun, Aichi 480-01, (JP)

LEGAL REPRESENTATIVE:

TER MEER STEINMEISTER & PARTNER GbR (100061), Mauerkircherstrasse 45,
81679 München, (DE)

PATENT (CC, No, Kind, Date): EP 879674 A1 981125 (Basic)
WO 9819821 980514

APPLICATION (CC, No, Date): EP 96937524 961107; WO 96JP3265 961107

PRIORITY (CC, No, Date): EP 96937524 961107; WO 96JP3265 961107

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: B23Q-015/00; G05B-019/403;

CITED PATENTS (WO A): Y Y Y

ABSTRACT EP 879674 A1

A method and apparatus for NC machining management based on a
measurement program, wherein a machining shape at an arbitrary machining
stage is determined by an NC program, a geometric element or a geometric
model is generated, and a measurement program is generated on the basis
of the geometric model. The measurement program is executed when at least
one of the steps of the NC program is completed, and the results of
measurement are used as control information for machining measurement.

ABSTRACT WORD COUNT: 82

LEGAL STATUS (Type, Pub Date, Kind, Text):

Examination: 001227 A1 Date of dispatch of the first examination
report: 20001110

Assignee: 20000119 A1 Transfer of rights to new applicant: Mitutoyo
Corporation (1108727) 20-1, Sakado 1-chome,
Takatsu-ku Kawasaki-shi, Kanagawa 213 JP
KABUSHIKI KAISHA MORI SEIKI SEISAKUSHO
(1093060) 106, Kitakoriyamacho
Yamatokoriyamashi Nara 639-11 JP
OKUMA CORPORATION (2058080) 1-32, Tsuji-machi,
Kita-ku Nagoya-shi, Aichi 462 JP
Yamazaki, Kazuo (2574980) 44204 Greenview Drive
El Macero, CA 95618 US

Application: 980916 A1 International application (Art. 158(1))

Application: 981125 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 981125 A1 Date of filing of request for examination:
980706

LANGUAGE (Publication,Procedural,Application): English; English; Japanese
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9848	602
SPEC A	(English)	9848	9674
Total word count - document A			10276
Total word count - document B			0
Total word count - documents A + B			10276

INVENTOR:

... US)

MATSUMIYA, Sadayuki, c/o Mitutoyo Corp ...

...SPECIFICATION machine tool has been in wide use in a variety of industrial fields as a **computer numerical control** machine tool (CNC machine tool) with a combination of techniques such as microprocessor techniques, power electronics techniques, and...

...a measurement result on NC machining after sequential automatic measurement using a three dimensional coordinate **measurement machine** during the NC machining with a measurement program previously generated in each machining process or...

...program is provided.

The machining element here means a group of operation elements at one **machining position** of a workpiece. In other words, an operation element means single machining carried out by...

...A machining element means to finish machining through a combination of operation elements on one **machining position** of a workpiece. For example, in a case of threaded hole drilling, a machining element is defined as a combination of **center hole drilling**, prepared hole, and tapping. In the present specification, a machining process means a series of...Drawings

Fig. 1 is a block diagram showing the entire configuration of a numerical control **system** incorporating **measurement** program generation and machining control related to the present invention.

Fig. 2 is a block diagram showing a **measurement** program generating **device** related to the present invention.

Fig. 3 is a block diagram showing a workpiece form...the thermal expansion of the machine tool or the like using an output from a **measurement device** set on the machine tool 26.

As described above, according to the NC program, the...

...After finishing the machining process machining on the workpiece 30 in the first posture, a **measurement machine** 31 **measures** a coordinate **system** of the workpiece 30 based on a measurement program in a measurement controller 32. The...whereby the coordinate system generated for NC machining is transformed into a three dimensional coordinate **system** for **measurement**. The thus extracted machining element list or transformed coordinate system list are provided to a...

...geometric model or the geometric element list in addition to probe information 47 from the **measurement machine** 31, tolerance information 48, and other necessary information 49. Based on the input information, a ...set arbitrarily in response to precision of a machine tool, or resolution of the entire **machining system**.

Further analysis of the program for the sequence N1 leads to the fact that lines...

...second machining process, since they use a work coordinate system G55 which is the coordinate **system** for **machining** on the front of the final workpiece form in the present embodiment shown in Fig...

...machining process and 2 operation elements in a second machining process are extracted.

The first **machining** process (G54)

position 1 (70.000, 50.000), **position** 2 (-70.000, 50.000),

position 3(-70.000...

...000), **position** 4 (70.000, -50.000),

position 5 (30.000, 0.000)
The second **machining** process (G55)
position 1 (40.000, 0.000), position 2 (-40.000, 0.000)

Analysis of operation elements...

...is judged to be drilling, and the following 5 operation elements are extracted.

A first **machining** process (G54)
position 1 (70.000, 50.000), position 2 (-70.000, 50.000),
position 3 (-70.000...

...is judged to be drilling, and the following 4 operation elements are extracted.

A first **machining** process (G54)
position 1 (30.000, 0.000, -19.9)
position 2 (-70.000, 50.000), position 3...

...be used. However, in the present embodiment, this judgment is carried out by comparing a **tool machining** path to machining pattern definitions by the dividing unit 63 and the machining element extracting ...judged to be a drilling element, and the following operation elements are extracted.

A first **machining** process (G55)
position 1 (40.000, 0.000)
position 2 (-40.000, 0.000)

Analysis of operation elements...

...Therefore, the operation element in N8 is judged to be a drilling element.

A first **machining** process (G54)
position 1 (70.000, 50.000)
position 2 (-70.000, 50.000)
position 3 (-70.000, -50.000)
position 4 (70.000, -50.000)
A second **machining** process (G55)
position 1 (40.000, 0.000)
position 2 (-40.000, 0.000)

Analysis of operation elements...

...operation element in sequence 7 is judged to be a hole drilling element.

A first **machining** process (G55)
position 1 (40.000, 0.000)
position 2 (-40.000, 0.000)
As described above, the...

...on the surface at X = 30 and Y = 0. Therefore, it is understood that a **center drilling** element is generated herein.
The operation element on the above surface is also applicable to...

...for a measurement program as it is In other words, in an NC program, the **machining coordinate system** is related to the posture of a workpiece fixed on a pallet. For example, the...

...actually shown as in Fig. 12A if it is on the pallet of a machine **tool**. Moreover, **machining** on its upper surface is shown by the coordinate **system** G54, while **machining** on its front surface is shown by the coordinate system G55. In the machining program...

...the pallet or the tool reference surface. As a result, the surface which the coordinate **system** of the **machining** program is dealing with is different from the coordinate system surface of the actual workpiece...

...machining process. In some cases, a workpiece is moved from a machine tool to a **measurement machine**. In such cases, the workpiece can be fixed on a table of the **measurement machine** in any direction. Therefore, the **measurement device** does not know how a reference

coordinate system among any one of the coordinate system G54 and G55 shown in Fig. 12A, for example G54, is placed. Therefore, the **measurement device** measures geometric elements necessary for obtaining G54 which is the reference coordinate system, using a program to generate a conventional measurement program. In this manner, the **measurement device** knows the position of the coordinate system G54, and stores a relationship between the coordinate...

...system G54, since the coordinate values of parts form size is based on the coordinate **system** G54. The **measurement machine** can thus provide such data to a measurement program during actual measurement operation. The coordinate system transformation equation used in such a **measurement device** is shown below:

Once a reference coordinate system, for example G54, is known, the coordinate...

...calculation between the coordinate system G54 and the machine coordinate system when fixed on the **measurement machine**.

In actual **measurement**, the **measurement device** of course places parts at a fixed position using a fixture, measures the reference coordinate...the program

- b. Name of a program file
 - c. Measurement result output file name
 - d. **Measurement** result output **device**
 - e. **Measurement** result output format
 - f. Others (process control information or the like)
2. Information attributed to a **measurement device**
 - a. Setting of a datum surface
 - b. unit (mm/inch)
 - c. Movement and measurement speed...

...inputs the information in advance. It is not necessary to input initial values regarding a **measurement device**, since they are pre-set. If desired values are different from the initial values, it...machining can be obtained. Moreover, while the measurement program is measuring a workpiece form being machined, the **measurement** result is fed back to machining management of a machine tool so that a relationship...

...strengthened.

Fig. 26 shows a state in which the measurement controller 32 is controlling the **measurement machine** 31, using the measurement program 50. The measurement controller 32 provides a measurement path defined by the predetermined measurement program to the probe of the **measurement machine** 31. The probe automatically measures the workpiece form in an arbitrary step. The measured values...

...the machine tool 26 of a measurement data error if the measurement result from the **measurement machine** 31 shows a result beyond tolerance or in a out-of-control zone. The measurement...

...provide not only the analysis information described above but also form elements such as size, **profile**, posture, **position**, and roughness to the machine tool 26. Therefore, the machine tool 26 can perform optimal ...

CLAIMS 1. A **measurement** program generating **device** used in NC machining wherein machining control is carried out by an NC program, comprising ...

...program generating unit for generating a measurement program based on the geometric model.

2. A **measurement** program generating **device** used in NC machining wherein machining control is carried out by an NC program, comprising ...

...program generating unit for generating a measurement program, based on the measurement path.

3. A **machining** management **device** used in NC machining and carrying out the measurement program described in Claim 1, which...

7/5,K/6 (Item 6 from File: 348)
DIALOG(R) File 348:EUROPEAN PATENTS
(c) 2002 European Patent Office. All rts. reserv.

00952565

METHOD AND DEVICE FOR ANALYZING NC PROGRAM FOR NC MACHINING
VERFAHREN UND VORRICHTUNG ZUR ANALYSE EINES NC-PROGRAMMES FUR
NC-BEARBEITUNG

PROCEDE ET DISPOSITIF D'ANALYSE DE PROGRAMME CN DESTINE A L'USINAGE CN

PATENT ASSIGNEE:

KABUSHIKI KAISHA MORI SEIKI SEISAKUSHO, (1093060), 106, Kitakoriyamacho,
Yamatokoriyamashi Nara 639-11, (JP), (applicant designated states:
DE;FR;GB;IT)

Mitutoyo Corporation, (1108722), 20-1, Sakado 1-chome, Takatsu-ku,
Kawasaki, Kanagawa 213-0012, (JP), (applicant designated states:
DE;FR;GB;IT)

OKUMA CORPORATION, (2058080), 1-32, Tsuji-machi, Kita-ku, Nagoya-shi,
Aichi 462, (JP), (applicant designated states: DE;FR;GB;IT)

Yamazaki, Kazuo, (2574980), 44204 Greenview Drive, El Macero, CA 95618,
(US), (applicant designated states: DE;FR;GB;IT)

INVENTOR:

YAMAZAKI, Kazuo, 44204 Greenview Drive, El Macero, CA 95618, (US)

MORITA, Naoki, c/o K.K. MORI SEIKI SEISAKUSHO, 106, Kitakoriyama-cho,
Yamatokoriyama-shi, Nara 639-11, (JP)

MATSUMIYA, Sadayuki, c/o Mitutoyo Corp., 20-1, Sakado, 1-chome,
Takatsu-ku, Kawasaki-shi,, Kanagawa 213, (JP)

FUKAYA, Yasushi, c/o Okuma Corp., Oguchi Kojo, 5-25-1 Shimo-koguchi,
Oguchi-cho, Niwa-gun, Aichi 480-01, (JP)

LEGAL REPRESENTATIVE:

TER MEER STEINMEISTER & PARTNER GbR (100061), Mauerkircherstrasse 45,
81679 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 881034 A1 981202 (Basic)
WO 9819820 980514

APPLICATION (CC, No, Date): EP 96937523 961107; WO 96JP3264 961107

PRIORITY (CC, No, Date): EP 96937523 961107; WO 96JP3264 961107

DESIGNATED STATES: DE; FR; GB; IT

INTERNATIONAL PATENT CLASS: B23Q-015/00;

CITED PATENTS (WO A): JP 4135207 A

ABSTRACT EP 881034 A1

A device for analyzing NC program is provided with a machining method
analyzing means (34) which extracts machining conditions for every
machining work element by analyzing an actual NC machining program, and
data base creating means (35). The device extracts necessary machining
information from the actual NC machining program and allows the data
bases (21, 22, 23 and 24) to reflect the information.

ABSTRACT WORD COUNT: 64

LEGAL STATUS (Type, Pub Date, Kind, Text):

Search Report: 020116 A1 Date of drawing up and dispatch of
supplementary:search report 20011204

Application: 980916 A1 International application (Art. 158(1))

Change: 020116 A1 International Patent Classification changed:
20011128

Change: 020116 A1 International Patent Classification changed:
20011128

Application: 981202 A1 Published application (A1with Search Report
;A2without Search Report)

Examination: 981202 A1 Date of filing of request for examination:
980706

LANGUAGE (Publication,Procedural,Application): English; English; Japanese

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	9849	580
SPEC A	(English)	9849	8150
Total word count - document A			8730
Total word count - document B			0
Total word count - documents A + B			8730

INVENTOR:

... JP)

MATSUMIYA, Sadayuki, c/o Mitutoyo Corp ...

...ABSTRACT element by analyzing an actual NC machining program, and data base creating means (35). The **device** extracts necessary **machining** information from the actual NC machining program and allows the data bases (21, 22, 23...

...SPECIFICATION by an NC program input, has been extensively utilized in various industrial fields as a **computer numerically controlled** machine tool (**CNC** machine tool) by being combined with micro processor techniques, power electronics techniques, or software techniques...

...an auxiliary function command, and a machining history. Numerical control information, which is necessary for **machining** to be **tool** controlled, is formed as an NC program for every machine tool.

In a prior art...

...i.e., corrected and edited) by repeatedly simulating or test-cutting with an actual machine **tool** at a **machining** site, and finally used for controlling **machining** of the **tool** as an actual machining NC program. Such a prior process for generating an NC program...

...means a group of all machining steps in which a workpiece never changes its fixed **position**. The term "**machining step**" means a group of work elements at the identical **machining position** of the workpiece. In other words, the term "work element" means a single machining or process performed by a **tool**, such as **drilling** or **milling**, and the term "**machining step**" means completing a single machining operation at the identical **machining position** of the workpiece by combining a plurality of work elements. For example, in screw hole cutting, a single machining step consists of three work elements; a **center** hole **machining**, a prepared hole machining, and a tapping machining.

After the above-described processes are determined...

...performed on the basis of the output numerical control information so as to optimize a **tool** path and **cutting** conditions such as a cutting speed, a feeding speed, or a depth of cutting. It...machining NC programs at an actual machining site.

As described above, in the conventional NC **machining system**, there are problems such that work for correcting and editing numerical control information is not...

...claim 4, wherein a pattern definition storing section for collating and judging the work element **machining** from a **tool machining** locus is connected to the dividing section for dividing the actual machining NC program into...are incorporated.

FIG. 3 is a block diagram of the principal parts of an NC **machining system** regarding the present invention in the system shown in FIG. 2.

FIGS. 4A, 4B, and...

...of the present invention.

FIG. 16 shows an example of a tool database which shows **tool machining** conditions for individual work element machining according to an embodiment of the present invention.

FIG...measures the coordinates of the workpiece 30 in accordance with a measuring program of a **measuring control device** 32. The **measured** result is feedback to the NC program executing means 27 and a machining method analyzing...

...storage means so as to correspond to each work element machining.

In FIG. 2, the **machining** program, the **tool** list and the measured results are supplied to the machining method analyzing means 34, which...

...databases when the next NC program is formed.

As described above, according to the NC **machining system** of the present invention, it is possible to obtain an excellent advantage as described in...written in each database for each work element machining. Generally, the machined material, the used **tool**, and each **cutting** condition are stored as the associated data for each work element

machining. In this case, a work element as a face machining step. An example of work elements and used tools for a machining step, and a pattern definition of a program analyzing method is shown in FIG. 9... defined in accordance with accuracy of a machine tool or a resolution of the entire machining system.

After the division for each work element machining has been performed, the result is stored...

...example of the workpiece database. A combination of work elements of the workpiece for each machining step, and tools used for each machining step are listed. Similarly, a workpiece file and a locus list...to prepare such a cutting condition database for all cases. However, according to the NC machining system of the present invention, data are successively accumulated in these databases, which is freely and...

...program even if the specified machine tool is in an idle state. Therefore, the NC machining system of the present embodiment has an advantage that it has an excellent growth and extendibility...

...or a face mill. In the present embodiment, the judgment is performed by collating a tool machining locus with a machining pattern definition. Although some examples have already been shown for a ...forming procedure are recorded.

EFFECTS OF THE INVENTION

As described above, according to the NC machining system of the present invention, machining methods are analyzed from an NC machining program used for...

...numerical control information formed whenever machining is required, a material shape, a machined final shape, machining processes, tool information, and cutting condition are accumulated so as to be associated with the ability of a machine tool...

...a factory.

Furthermore, the machining conditions for each work element machining used in an NC machining system with regard to the present invention can be used for machining by any other machine...

...CLAIMS claim 4, wherein a pattern definition storing section for collating and judging the work element machining from a tool machining locus is connected to the dividing section for dividing the actual machining NC program into...

7/5,K/7 (Item 7 from file: 347)
DIALOG(R) File 347:JAPIO
(c) 2002 JPO & JAPIO. All rts. reserv.

06814242 **Image available**
WORK SHAPE MEASURING SYSTEM

PUB. NO.: 2001-041735 [JP 2001041735 A]
PUBLISHED: February 16, 2001 (20010216)
INVENTOR(s): MATSUMIYA SADAYUKI
ARAI MASANORI
YODA KOJI
APPLICANT(s): MITSUTOYO CORP
APPL. NO.: 11-213348 [JP 99213348]
FILED: July 28, 1999 (19990728)
INTL CLASS: G01B-021/20; B23Q-017/20

ABSTRACT

PROBLEM TO BE SOLVED: To execute measurement highly precisely by a coordinate measuring machine integrated in a machining center or installed on a machining line.

SOLUTION: A stand-by position part for executing measurement by a coordinate measuring machine 40 is separated from a machine tool 20,

and an installation floor surface of the coordinate measuring machine 40 is severed and separated from an installation floor surface of the machine tool 20 and a conveyance device, and the stand-by position part and a workpiece loading part are integrated with a base 46 of the coordinate measuring machine 40, and thereby relative displacement between a workpiece 10 and the base 46 of the coordinate measuring machine 40 becomes zero.

COPYRIGHT: (C)2001,JPO

WORK SHAPE MEASURING SYSTEM

INVENTOR(s): MATSUMIYA SADAYUKI
ARAI MASANORI
YODA KOJI

ABSTRACT

PROBLEM TO BE SOLVED: To execute measurement highly precisely by a coordinate measuring machine integrated in a machining center or installed on a machining line.

SOLUTION: A stand-by position part for executing measurement by a coordinate measuring machine 40 is separated from a machine tool 20, and an installation floor surface of the coordinate measuring machine 40 is severed and separated from an installation floor surface of the machine tool 20...

...position part and a workpiece loading part are integrated with a base 46 of the coordinate measuring machine 40, and thereby relative displacement between a workpiece 10 and the base 46 of the coordinate measuring machine 40 becomes zero.

Set	Items	Description
S1	199911	(MACHINING? OR MACHINE OR CUTTING OR DRILLING OR BORING) (2-N) (CENTER? OR SYSTEM? OR DEVICE? OR TOOL? OR POSITION? OR LINE?)
S2	30559	(PALLET? OR WORK(W)PIECE? OR WORKPIECE?) (2N) (MAGAZIN? OR CHANGER? OR TABLE?) OR CONVEYOR?
S3	555168	(MEASUR? OR INSPECT? OR PROFIL? OR GUAG? OR EVALUAT? OR CALCULAT?) (2N) (APPARATUS OR MACHINE? OR POSITION? OR SYSTEM? OR DEVICE?) OR CNC OR COMPUTER() NUMERICAL? () CONTROL? OR CMM OR (-CO() ODINAT? OR COORDINAT?) () MEASURING() MACHIN?
S4	1333626	SHAR? OR CLOSE(6N) (VICINITY? OR PROXIMIT?) OR INCORPORAT?
S5	13	SHORT? () (PRODUCT? OR ASSEMBL?) () LINE?
S6	0	S1 AND S2 AND S3 AND S4 AND S5
S7	6	S1 AND S2 AND S3 AND S4
S8	6	RD (unique items)
S9	6	S8 AND PY<=1999
S10	64	S1(3N)S3(3N)S4
S11	55	S1(2N)S3(2N)S4
S12	41	RD (unique items)
S13	37	S12 AND PY<=1999

? show files

File 2:INSPEC 1969-2002/Oct W3
(c) 2002 Institution of Electrical Engineers

File 8:Ei Compendex(R) 1970-2002/Oct W2
(c) 2002 Engineering Info. Inc.

File 6:NTIS 1964-2002/Oct W3
(c) 2002 NTIS, Intl Cpyrght All Rights Res

File 34:SciSearch(R) Cited Ref Sci 1990-2002/Oct W3
(c) 2002 Inst for Sci Info

File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
(c) 1998 Inst for Sci Info

File 35:Dissertation Abs Online 1861-2002/Sep
(c) 2002 ProQuest Info&Learning

File 65:Inside Conferences 1993-2002/Oct W3
(c) 2002 BLDSC all rts. reserv.

File 94:JICST-EPlus 1985-2002/Aug W3
(c) 2002 Japan Science and Tech Corp (JST)

File 99:Wilson Appl. Sci & Tech Abs 1983-2002/Sep
(c) 2002 The HW Wilson Co.

File 144:Pascal 1973-2002/Oct W3
(c) 2002 INIST/CNRS

File 305:Analytical Abstracts 1980-2002/Oct W1
(c) 2002 Royal Soc Chemistry

File 344:Chinese Patents Abs Aug 1985-2002/Oct
(c) 2002 European Patent Office

File 202:Information Science Abs. 1966-2002/Oct 03
(c) Information Today, Inc

File 62:SPIN(R) 1975-2002/Sep W3
(c) 2002 American Institute of Physics

?

9/7/1 (Item 1 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

03465372 INSPEC Abstract Number: C89060591

Title: Flexibility looms for Italian textile manufacturer

Author(s): Mullins, P.

Journal: FMS Magazine vol.7, no.3 p.118-21

Publication Date: July 1989 Country of Publication: UK

CODEN: FMSMEX ISSN: 0263-9777

Language: English Document Type: Journal Paper (JP)

Treatment: Applications (A)

Abstract: Describes an FMS that machines 12 families of prismatic parts for textile machinery, at Somet, based in Northern Italy. The FMS comprises six Mandelli Regent 1200 **machining** centres installed **line abreast** and served by two rail-guided pallet-changing vehicles. Each machining centre has a movement capability of 1450*1200*1200 mm and is fitted with twin 60-station tool magazines and ISO 800*800 **pallet tables**. Head power in each case is 25 kW. Each machining centre is controlled by Mandelli's own Plasma **CNC** system linked through an Ethernet-Decnet network direct to the company's Calma CAD/CAM/CAE system and a central Microvax II computer for data processing. The software **incorporates** an expert CAPP system. (0 Refs)

Subfile: C

9/7/2 (Item 2 from file: 2)

DIALOG(R) File 2:INSPEC

(c) 2002 Institution of Electrical Engineers. All rts. reserv.

03160344 INSPEC Abstract Number: C88039034

Title: Cincinnati collaborates on computerised cell control

Journal: FMS Magazine vol.6, no.2 p.101-2

Publication Date: April 1988 Country of Publication: UK

CODEN: FMSMEX ISSN: 0263-9777

Language: English Document Type: Journal Paper (JP)

Treatment: Practical (P)

Abstract: Cincinnati Milacron UK is spearheading a new approach to flexible manufacturing in Europe with a collaborative venture involving Siemens numerical control units. The history of the two firms and their collaboration is outlined, then the cell is described. It comprises two T-10 horizontal machining centres fitted with the Siemens Sinumerik 850 **CNC** system. Each has a magazine for 90 tools. An integral front-mounted dual- **pallet** automatic work **changer** transfers components from the loading to the **machining position**. At the front of the machines is a rail-guided pallet transporter, an operator load/unload station and 12 pallet stands. The transporter is fitted with the Siemens Simatic S5-130W PLC. An automatic tool delivery system is also **incorporated**. (0 Refs)

Subfile: C

9/7/3 (Item 1 from file: 8)

DIALOG(R) File 8:Ei Compendex(R)

(c) 2002 Engineering Info. Inc. All rts. reserv.

01857420 E.I. Monthly No: EIM8502-012383

Title: SIMULATION FOR DESIGN AND OPERATION OF MANUFACTURING SYSTEMS.

Author: Iwata, K.; Yasuda, K.; Oba, F.

Corporate Source: Kobe Univ, Kobe, Jpn

Conference Title: CIRP Annals 1984: Manufacturing Technology, 34th General Assembly of CIRP.

Conference Location: Madison, USA Conference Date: 19840820

Sponsor: CIRP, Paris, FR

E.I. Conference No.: 05538

Source: CIRP Annals 1984 v 33 n 1 1984. Publ by Technische Rundschau, Berne, Switz. p 335-339

Publication Year: 1984

CODEN: CIRAAT ISSN: 0007-8506 ISBN: 3-905277-01-8

Language: English

13/7/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC
(c) 2002 Institution of Electrical Engineers. All rts. reserv.

4470253 INSPEC Abstract Number: C9310-3355C-003
Title: The use of a machine vision system in a flexible manufacturing cell incorporating an automated coordinate measuring machine
Author(s): Wang, X.J.; Butler, C.
Author Affiliation: Dept. of Manuf. & Eng. Systems., Brunel Univ., Uxbridge, UK
Journal: Proceedings of the Institution of Mechanical Engineers, Part B (Journal of Engineering Manufacture) vol.207, no.B3 p.199-204
Publication Date: 1993 Country of Publication: UK
CODEN: PIBMEU ISSN: 0954-4054
U.S. Copyright Clearance Center Code: 0954-4054/93/\$3.00.05
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P)
Abstract: Presents a practical approach to the solution of problems associated with using an automated coordinate measuring machine (CMM) in a flexible manufacturing system (FMS) environment. The approach described uses machine vision and image processing techniques to permit transformations of the coordinate systems. In order to achieve flexible inspection, the system can recognize different workpieces by a quick matching method. The actual measuring path for the workpiece is derived from the original measuring path templates to allow for a workpiece to be measured in an arbitrary orientation on the table of the CMM. The original measuring path can be generated off-line by self-teach programming or from a computer aided design (CAD) system. (8 Refs)
Subfile: C

13/7/26 (Item 2 from file: 94)
DIALOG(R)File 94:JICST-EPlus
(c)2002 Japan Science and Tech Corp(JST). All rts. reserv.

02004791 JICST ACCESSION NUMBER: 94A0164854 FILE SEGMENT: JICST-E
This is NC.(35).Manufacturing systems were improved by the activity of machining centers.(2).
SATO YOSHIHARU (1)
Kikai to Kogu(Tool Engineer), 1994 , VOL.38,NO.2, PAGE.114-122, FIG.6, TBL.6
JOURNAL NUMBER: G0120AAZ ISSN NO: 0387-1053
UNIVERSAL DECIMAL CLASSIFICATION: 621.91
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Commentary
MEDIA TYPE: Printed Publication
ABSTRACT: The following are explained : a machining monitoring system to amplify a complementary system for a machining center ; the relation between a measurement and correction system incorporated in a machining center and its effects ; the effects of connected or jointed surface on the rigidity and reliability, with consideration to the importance of peripheral technology ; and as determining factors of quality of tools, application examples of milling cutters and drills.

13/7/35 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal
(c) 2002 INIST/CNRS. All rts. reserv.

13253518 PASCAL No.: 97-0523718
A new technique for volumetric error assessment of CNC machine tools incorporating ball bar measurement and 3D volumetric error model
HEUI JAE PAHK; YOUNG SAM KIM; JOON HEE MOON
Department of Mechanical Design and Production Engineering, Seoul National University, Seoul, Korea, Republic of
Journal: International journal of machine tools & manufacture, 1997 , 37 (11) 1583-1596

ISSN: 0890-6955 CODEN: IMTME3 Availability: INIST-135
354000068528010030

No. of Refs.: 8 ref.

Document Type: P (Serial) ; A (Analytic)

Country of Publication: United Kingdom

Language: English

This paper presents a useful technique for assessing the volumetric errors in multiaxis machine tools using a kinematic double ball bar. This system has been developed based on a volumetric error model which describes the three-dimensional errors of machine tools. The developed system requires input of the measured radial data performed on the three orthogonal planes, and analyzes parametric errors such as positional, straightness, angular, squareness, and backlash errors. The developed system can also assess the dynamic performance of machine tools such as errors due to the servo gain mismatch. The developed system has been tested using an actual machine tool, showing high potential for error assessment of multiaxis machine tools.

Copyright (c) 1997 INIST-CNRS. All rights reserved.

?